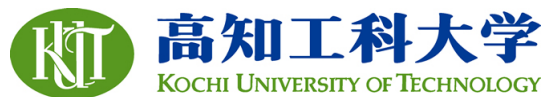


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# ANALYSIS OF BUSINESS CONTINUITY MANAGEMENT IMPLEMENTATION LEVELS OF JAPANESE MANUFACTURING

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**ABSTRACT:** In 2009, Cabinet Office, Government of Japan conducted a survey on Disaster Management and Business Continuity Management in which about 1500 companies responded. This paper reviews the status BCM implementation of Japanese manufacturing companies. According to this survey, three industries; Financial & Insurance, Electric Power, Gas & Water and Information & Communication, show highest Disaster Management and BCM implementation percentage. Those three industries have a common factor that they provide essential services for society through their network. And they are heavily regulated industries. Manufacturing industry is ranked in the middle of the list, many of which companies refer to “demand from clients” as one of reasons to introduce BCM. It is considered that regulations and business relationship are one of strong factors for promotion of BCM. Among those four groups, most advanced group in BCM shows highest disaster experiences and more companies have head offices or branched in the Government designated “high earthquake zone” where governments provides with prioritized counter measures for the risk. Those surrounding factors are also considered as one of strong promoting factors. And this paper reviews problems and suggestions for further promotion of BCM.

**KEYWORDS:** business continuity plan, disaster management,, management system standard

## 1. INTRODUCTION

The Cabinet Office of Japanese government conducted extensive surveyed on Disaster Management and Business Continuity management of private companies in 2008. About 1500 companies answered the survey.

This paper mainly focuses on manufacturing companies which are the largest numbers in this survey to review the industry from the current status of BCP implementation. And also this reviews factors which trigger and promote BCP introduction and implementation.

## 2. BCM IMPLEMENTATION STATUS OF JAPANESE INDUSTRIES

### 2.1 DMP and BCP by industries

The Cabinet Office 2008 did survey on about 1500 companies through industries. Figure 1 shows percentage of the surveyed companies which implemented Disaster Management Plan (DMP) and Business Continuity Plan (BCP) by types of industries. Financial and insurance shows the highest percentage both in DM and BCP (85% - 42%), Electric power, gas and water comes as second in DP as 81% with BCP 21%. Information and communication is in the third in DP (51%) with BCP

24%. At the bottom, Retail shows 33% of DP and 4% of BCP, Construction DP 36% and BCP9%. Figure 1 tells large differences in types of industries. The largest numbers of surveyed companies is manufacturing industry and it is ranked in the middle as DP 53% and BCP 11%.

The Figure 1.1 shows correlation between DMP and BCP implementation ratios. The higher is DMP ratio, the higher is BCP ratio. Financial and insurance

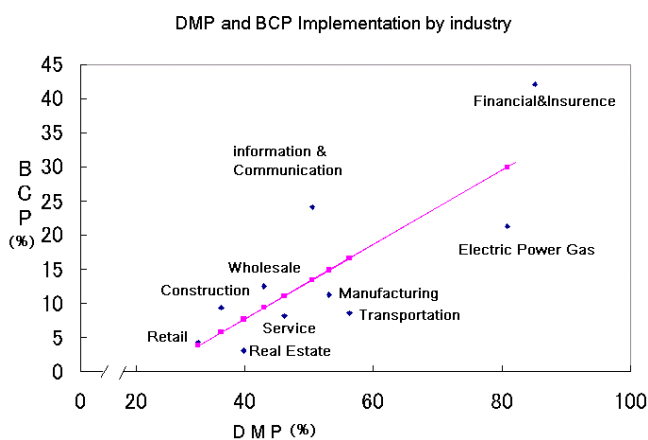


Figure 1.1

is posted at upper right near corner and Retail and Real Estate are in the opposite. Even within high DMP implementation group, Financial & Insurance show double percentage of BCM implementation of Electric Power, Gas & Water.

The Cabinet Office survey shows high ratio of the companies throughout the industry which do not know BCP. The Figure1.2 shows relation of DMP implementation ratio and the one of “Do not know BCP” Group by industry.

This shows that higher is the DMP implementation ratio, the lower the ‘Don’t know BCP’ ratio. This indicates introducing DMP leads to knowledge of BCP. In other words! DMP can be regarded as the grounding for BCP implementation.

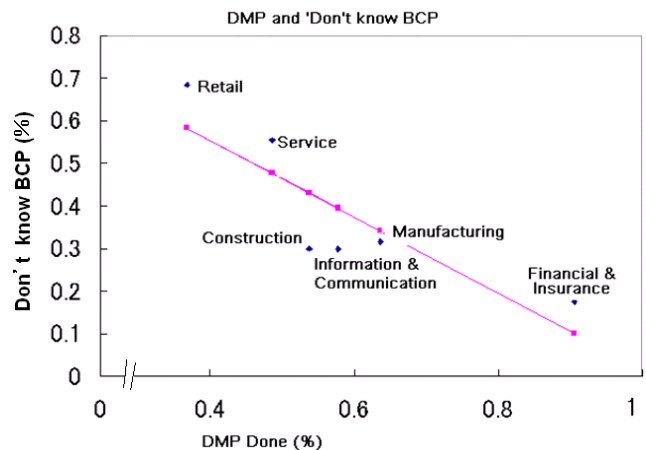


Figure 1.2

## 2.2 Reasons to introduce BCP by industries

The reasons why the companies introduced BCP vary by industries as shown by Table 2.1. Among seven main industries show by this table, most selected reason is Social responsibility in all seven industries. But the following reasons are different by industries. Financial & Insurance selected “guidelines from! governments/industry body “ as 2<sup>nd</sup> and “laws and regulations “as 3<sup>rd</sup>. Electricity Power, Gas and Water industry selected “laws and regulation” as 2<sup>nd</sup> and three reasons as 3<sup>rd</sup> which are “demand from shareholders”, “enhancing company brand” “.

	Financial & Insurance	Information & Communication	Manufacturing	Construction	Service	Retail	Electric Power, Gas, Water
laws and regulations	28.7	22.7	28.5	32.5	22.4	38.9	41.1
demand /domestic clients	11.3	11.2	41.8	4.5	8.8	5.6	0
demand /overseas clients	0	6	9.8	0	3.8	0	0
demand / shareholder	13	5.9	13.1	1.1	11.1	8.4	29.4
demand / creditor	0	0	0	0	1.2	0	0
consulting firm's advice	0.8	0	3.9	0	3.3	11.1	5.9
learned fr. past disaster	24.8	13.2	29.7	38.1	24.6	33.3	17.6
seismic diagnosis report	1.7	2.6	9.2	1.1	1.2	2.8	0
social responsibility	55.2	72.1	77.7	92.9	68.9	65.2	52.9
enhancing company brand	1.7	20	16.2	7.1	22	23.6	29.4
knowing BCP loans etc.	0	0	0.3	1.1	0	0	0
guidelines fr. government, industry body	34.6	24	24.1	27	19.3	23.6	11.7
seminars by government, industry body	5.1	2.6	10.5	7.8	11.1	16.6	23.6
government HP	0.8	2.6	2.8	10.9	3.8	5.5	0
private company's HP	0	0	0.5	0	1.2	0	0
newspaper, magazine, books	1.7	9.5	11.8	1.1	9	12.5	29.4

Table 2.1

But manufacturing industry selected “demand for domestic clients” as 2<sup>nd</sup> and “learned from past

disaster/accident” as 3<sup>rd</sup>. It is very interesting to note that the former two industries are concern more industry wide network under heavy regulations. The latter is more concerned with business relationships and individual past experiences. This also tells us that promoting measures should take consideration of the circumstances of the industries.

### 3. BCP IMPELEMETATION LEVELS OF JAPANESE MANUFACTURING

In my previous paper, I analyzed whole industry trends. This paper focuses mainly on manufacturing industry and compares the levels of BCP implementation. The 426 manufacturing companies answered this survey, of which 271 companies (64 %) had implemented DMP.

BCP status - Manufacturing

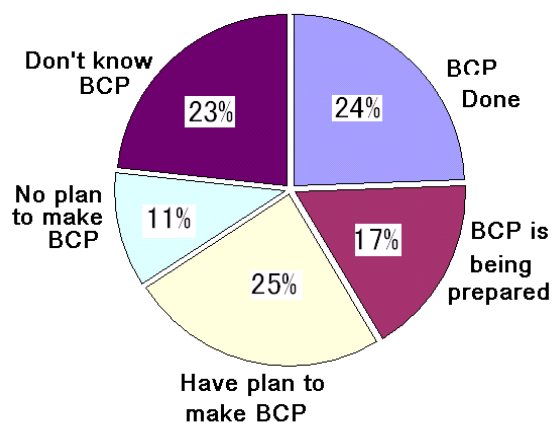


Figure 3.1

As Figure 3.1 shows that almost one quarter of the companies does not know BCP, and that another quarter has a plan to make BCP. 41% have introduced or has been preparing BCP.

In order to further analyze what kinds of activities and measures are done (or not done), I categorized companies into four different groups. This is done solely based upon selected answers to the survey. Those are companies which implemented DMP and Group 1:”Don’t know BCP” (G1): companies which

do not know BCP (63)

Group 2:” Have plan to make BCP” (G2): companies which have no plan to make BCP (29)

Group 3:”BCP done without RTO \*(G3): companies which have made BCP but no RTO set (31)

Group 4:” BCP done with RTO (G4): companies which have made BCP with RTO set (30)

\*Note: RTO stands for Recovery Time Objective

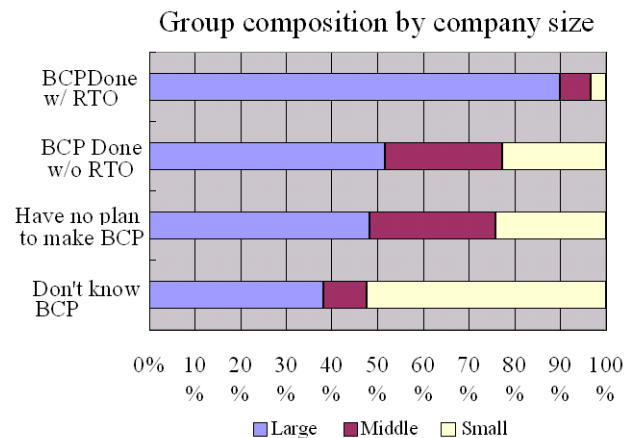


Figure 3.2

The Figure 3.2 shows each composition of group by its size; large middle and small. (this definition is provided in the survey).In Group 1”Don’t know BCP”, the majority of is small companies. About half of G2” Have no plan to make BCP” and G3 “BCP Done w/o RTO are large companies. And over 90% of G4”BCP done w/RTO” is large companies. This indicates size of company is one of important factors.

#### 3.1 ! Disaster experience

In my prior analysis from whole industry, there was not clear relation between disaster experience and BCP implementation. This paper reviewed disaster experience further by separating into the above 4 groups, of which result is drawn in Figure 3.3. It clearly shows increase of disaster experienced companies from G1 “Don’t know BCP” group to G4 “BCP done w. RTO” group.

The percentage of disaster experience shown in Figure 3.3 is simply tallied cumulatively of multiple answers. If we count one for each company, regardless of experiences of multiple disaster types, the percentage of disaster experience of each group is as follows. G1:22%, G2:38%, G3; 42%, and G4:60%. It also shows the same increasing trend. This shows most BCP advanced companies have higher percentage of disaster experiences. Less experienced companies are less prepared for BCM.

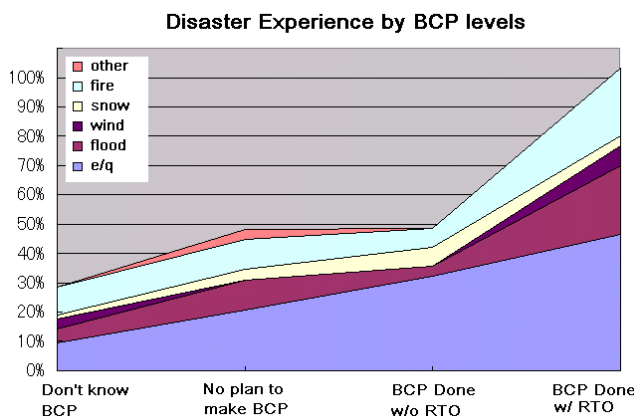


Figure 3.3

Among listed disasters, such as earthquake, flood, fire, snow, etc, earthquake is the most experienced / affected disaster. In G4 47 % is affected by earthquake but only 10% of G1 is affected. As to flood and fire, both 23% of G4 but only 5% and 10% of G1 is respectively affected. This is very notable difference. Being affected by such disaster does not mean to have been physically hit or directly damaged by earthquake. Large companies are more vulnerable because of wider expansion of own facilities and more complex supply chains. The Cabinet Office survey report tells that 78% of large companies, 68% of middle companies and 57% of small companies were affected by earthquake. (flood: 37%, 32% and 18% respectively)

### 3.2 Head office and Branches Locations

Japanese Government have announced higher earthquake risk zones where earthquake counter

measures have been done by Central and local governments. The survey asks if the head office and/or branches of the company are located in such zones. G4 shows highest ratio (both HO and branches: 83%) of the companies which have their head office and branches in such zones. G1 shows only 56% and 54%.

One factor should be noted of the different compositions of four groups. G1 has higher composition (29%) of the companies operating at a single location and 93% of G4 have multiple locations.

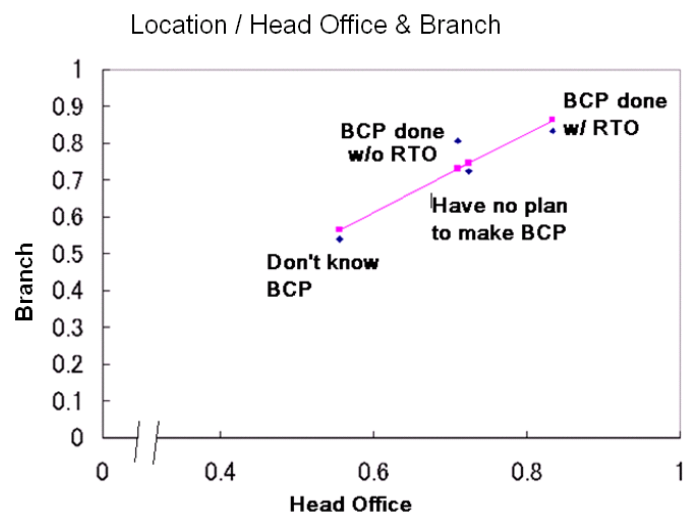


Figure 3.4

### 3.3 Comparison among 4 groups on implemented BCP measures

Cabinet Office survey raises series of important questions on important BCP measures. Hereafter, I review how those measures have been implemented (or not implemented) in 4 groups.

Those measures are in the field of 1) Emergency response, 2) IT system, 3) Damage prevention, 4) Supply management, 5) Disaster plan /BCP manuals, 6) Education & exercise, 7) Local community contribution. Within each of seven fields, there are seven to twelve measures and 72 items in total listed as multiple answers to select. Each selection of answers is counted and calculated how much

percentage of the companies have implemented in each of 4 groups. And each measure is classified into four level of implementation ratio, or 1) bottom quarter=0% to 24%, 2) second bottom quarter=25%-49%, 3) second top quarter=50% to 74% and 4) top quarter=75% & over.

Field	Measures taken	Don't know BCP	No plan to make BCP	BCP done w/o ITO	BCP done w/ITO
Emergency Response Mgt	Determine chain of command	83%	93%	100%	97%
IT Systems	IT data back-up	78%	79%	77%	93%
Emergency Response Mgt	Designate Board Member in charge	79%	86%	94%	93%
Education & Exercises	Evacuation drill	76%	86%	90%	90%
Damage Prevention	Anti-tipping measures/office furniture	57%	66%	81%	97%
Education & Exercises	Plan & Manual of Education/Training	54%	52%	77%	90%
Emergency Response Mgt	Determine employee safety confirmation	54%	45%	77%	83%
DFB/CP Manuals	Emergency Response manual			90%	83%
Emergency Response Mgt	Establish information during & public	54%	52%	71%	80%
Damage Prevention	Anti-seismic bolting machine/equipment	48%	62%	68%	93%
Damage Prevention	Anti-seismic reinforcement-office/factory	30%	55%	59%	80%
Emergency Response Mgt	Determine the place ERC gathers	52%	45%	61%	80%
IT Systems	Establish back-up (org. staffs/procedure)	19%	34%	52%	77%
IT Systems	Anti-Seismic reinforcement	17%	38%	48%	77%
Emergency Response Mgt	Interdepartmental Staff Mobilization	48%	55%	81%	67%
Emergency Response Mgt	Determine chain of command during of	44%	79%	74%	73%
Emergency Response Mgt	Determine succession order of ERC head	43%	62%	74%	70%
IT Systems	Establish back-up system	48%	55%	55%	67%
Damage Prevention	seismic diagnosis of offices & factories	35%	45%	55%	70%
Education & Exercises	Emergency communication drill	40%	38%	55%	50%
Education & Exercises	Medical emergency rescue drill	41%	48%	65%	57%
DFB/CP Manuals	IT system back-up manual			52%	73%
DFB/CP Manuals	Disaster/Functional plan			55%	67%
IT Systems	Critical document data storage at safe	37%	41%	42%	67%
Supply Chain Mgt	Establish internal alternate production	25%	34%	48%	60%
IT Systems	Duplication of electricity	29%	34%	48%	57%
Education & Exercises	Employee safety confirmation drill	21%	21%	29%	63%
Damage Prevention	New seismic diagnosis of building	14%	38%	32%	63%
DFB/CP Manuals	Production recovery / transfer manual			35%	60%
DFB/CP Manuals	Education & Exercise manual			26%	57%
DFB/CP Manuals	IT system recovery manual			29%	57%
DFB/CP Manuals	Company-wide plan			39%	53%
DFB/CP Manuals	IT system back-up emergency stop manual			39%	53%
Local Community Center	Money donation	17%	28%	23%	53%

Figure 3.5

By sorting the list by higher implementation ratio, we will be able to see measures selected in a priority order by surveyed companies of four groups. The first page of this list is shown in Figure 3.5.

### 3.3.1 Common measures done by 4 groups

All manufacturing companies classified in any of four groups have implemented DMP. Figure 3.5 shows top four lines which are done by all 4 groups over 75% of companies of all groups. Those are “Determine chain of command” ,”IT data back up”, ”Designate Board Member in charge”, ”Evacuation Drills” Those are very critical ones to be done at first as DMP.

Following the above, over 75% of G3 and G4 have implemented other 4 measures, which are “Anti-tipping measures/office furniture”, ” Plan & Manual of Education/Training ”,” Determine

employee safety confirmation ”,” Emergency Response manual”. Those are to be considered still as measures for DMP.

At the next level, the measures which are done by more than 75% of G4 are ones such as “Establish information sharing & public relations “,” “Anti-seismic bolting machine/equipment “,” “Anti-seismic reinforcement –office & factory “,” “Determine more than one places of ERC “,” “Establish back up org. /staffs./procedures “,” “Anti-Seismic reinforcement of IT center “.

50-74% of G3 have also implemented 5 of 6 measures. 50-75% of G2 have done 3 of 6. Those measures are still in the field of emergency response and establishing back up systems.

Further down the list by implementation ratio, come the following measures such as “Interdepartmental Staff Mobilization “,” “Determine chain of command during off hours “,” “Determine succession order of ERC head “,” “Establish IT back up system “. Those have been done by 50-75% of G4 and G3. More strategically important and practical measures come to appear here in the list.

The above selected 18 measures are in the fields of emergency response (8), IT systems (4), education and exercise (3).BCP manual (1) those are very critical ones but are also limited in human safety and emergency response, IT system protection, facility protection.

Other than above 18 measures, there are very critical ones such as , “Critical document data storage at safe site “,” “Establish internal alternate production site “,” “Duplication of electricity “,” “Employee safety confirmation drill “,” “Production recovery / transfer manual “,” “Production recovery /

transfer manual “, “IT system recovery manual “, “IT system emergency stop manual “, Those ones have been done by 50% to 74% of G4 and 25% to 49% of G3 companies.

There are other notable measures which jumped up in G4. Those are five local community contribution activities, such as “Money donation”, “Provide own products/services”, “Support to employee volunteer activities”, “Dispatch employees to the site”, “Assistance to clearing/ debris removal”. Those activities are done only 53% to 37 % of companies but are increased more than 30% among G4 companies compared with G3. It may indicate progressing BCM measures bring much closer attention and cooperation towards community recovery as well as own recovery. This is another matter to be researched further.

### **3.3.2 Observed status of BCP implementation**

It should be noted that Cabinet Office loosely defines BCP for the purpose of this survey. In the survey paper, after the general definition of BCP, it adds that the answering company may regard itself as it has implemented BCP when it implemented certain measures which would be effective to shorten disaster recovery period or avoid business disruption. Unlike international BCM standards, in Cabinet Office survey and in this paper, “BCP implemented (or done)” means the companies have implemented certain BCP measures or have started BCP measures. It does not mean that companies comply with BCM standards which demands list of requirements.

As seen above 3.3, even companies which belong to most advanced G4 with RTO set, may face difficulties to achieve their objectives. It is because implemented measures have not come to evenly enough levels which enable them to resume operations as planned.

## **4. CONCLUSION**

This paper views status of BCP implementation of mainly Japanese manufacturing companies. Based upon the above, I would like to summarize this paper to review factors to trigger and promote BCP introduction and factors to implement balanced and effective BCP.

### **4.1 Factors which trigger and promote BCP introduction**

#### **4.1.1 Difference among industries**

Financial & Insurance industry, Electric power, Gas & Water industry and Information & Communication industry show highest implementation ratios among all industries in Japan. The common factors among those three industries are that they provide essential services to the society through their networks. Their industry is under heavy regulation by authorities. “Laws & Regulations” On the other hand, manufacturing industry has long and complex supply chains and concerns more about business relationships. The demand from the clients is one of strong reasons to introduce BCP. Both reasons seem to be key factors for promoting BCM. Not only those two but other key factors should be further researched by considering different circumstances of various industries.

#### **4.1.2 Disaster prone locations and experiences**

Through the above 4 group comparison, the most advanced group has highest percentages of companies which have head office and/or branches in “higher earthquake risk zones” and of the companies which highest percentages of disaster experiences. This indicates disaster prone locations and disaster experiences are promoting factors, too. This also tells us that even outside the zones or without disaster experiences, educations by

simulating disaster experience must be effective.

#### **4.1.3 Knowledge of BCP**

The survey reveals many companies do not know BCP. There is clear inverse correlation between DMP implementation and no knowledge of BCP. Also higher DMP implementation ratio has correlation with higher BCP introduction ratio. This indicates DMP works as the ground for BCP introduction. Among companies which answered as BCP done, substantial percentages of companies do know Business Impact analysis. This method is an important starting point to start BCP implementation.

#### **4.1.4 Company size**

The above 4 group comparison shows the most advanced G4 is consisted of over 90% of large companies. In contrast, the least advanced G1; small companies are more than 50%. Company size appears to affect BCP implementation. Focusing on small to middle size companies, what are effective factors to introduce BCP have to be researched.

#### **4.2 BCP Minimum Measures**

Reviewing the list stated in 3.3, even among advanced BCP group, many seem to be still in the stages of being implementing BCP. The commonly recognized problems are “lack of skill & know how”, “lack of staffs” and “lack of information”. How are those needs to be met? Disaster management and BCP are not a type of field which companies learn through trial and error over the years. Once a major disaster hits a company which is not well prepared, the risk of its failure is not small. For those needs, good practices accumulated from various sources should be disseminated to industries. In Japan Cabinet Office published BCM guidelines in 2005 and revised in 2009. Any domestic BCP standard has not yet made. The above problems shared by industries clearly indicated the needs such

practical and balance advices which tells industries specifically what to do. There are published BCM standards which show good practice and minimum requirements for BCP implementation. Those standards have to be reviewed if they enable companies to implement effective BCP.

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